

# Liquid Oxygen Cylinder Explosion

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- Improper methods used to render scrap cylinder unserviceable
- Unsafe modifications to cylinder design

The incident described in the following presentation did not involve an Airgas company.

# Accident Profile

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- Two individuals (ages 42 and 60) found a liquid oxygen cylinder that had been removed from service and left at a scrap metal dealer
- The individuals were self-employed in scrap metal cutting operations and intended to use the cylinder in their work

# Accident Profile

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- The individuals had access to a liquid oxygen supplier where cylinder ownership would not be questioned
- Jury-rigging fill connections, the first attempt to fill the cylinder resulted in rapid venting through the Pressure Relief Device (PRD)

# Accident Profile

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- The PRDs were removed and plugged
- The cylinder was filled while onboard a pickup truck
- The cylinder, which had no vacuum, was now unable to vent excess pressure

# Accident Profile

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- While being transported down a busy highway, the pickup truck experienced a flat tire
- Shortly thereafter, the cylinder exploded with the results shown in the following slides

# Pickup truck on which the cylinder was being transported

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# Pickup truck on which the cylinder was being transported

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# Pickup and cylinder remains

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# Cylinder top

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## Cylinder outer shell, bottom

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# Cylinder bottom shell

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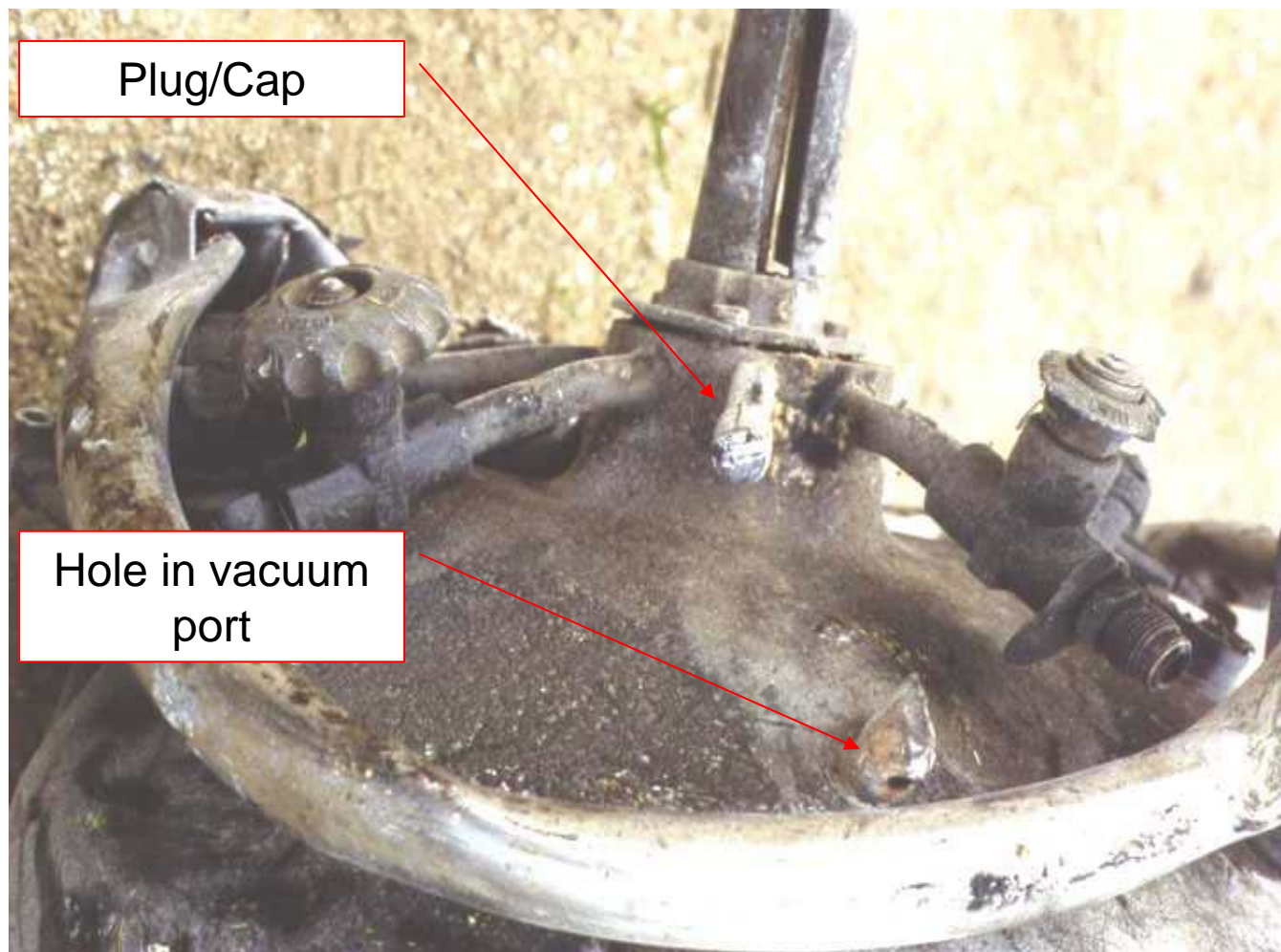




PRD location was plugged using a threaded cap

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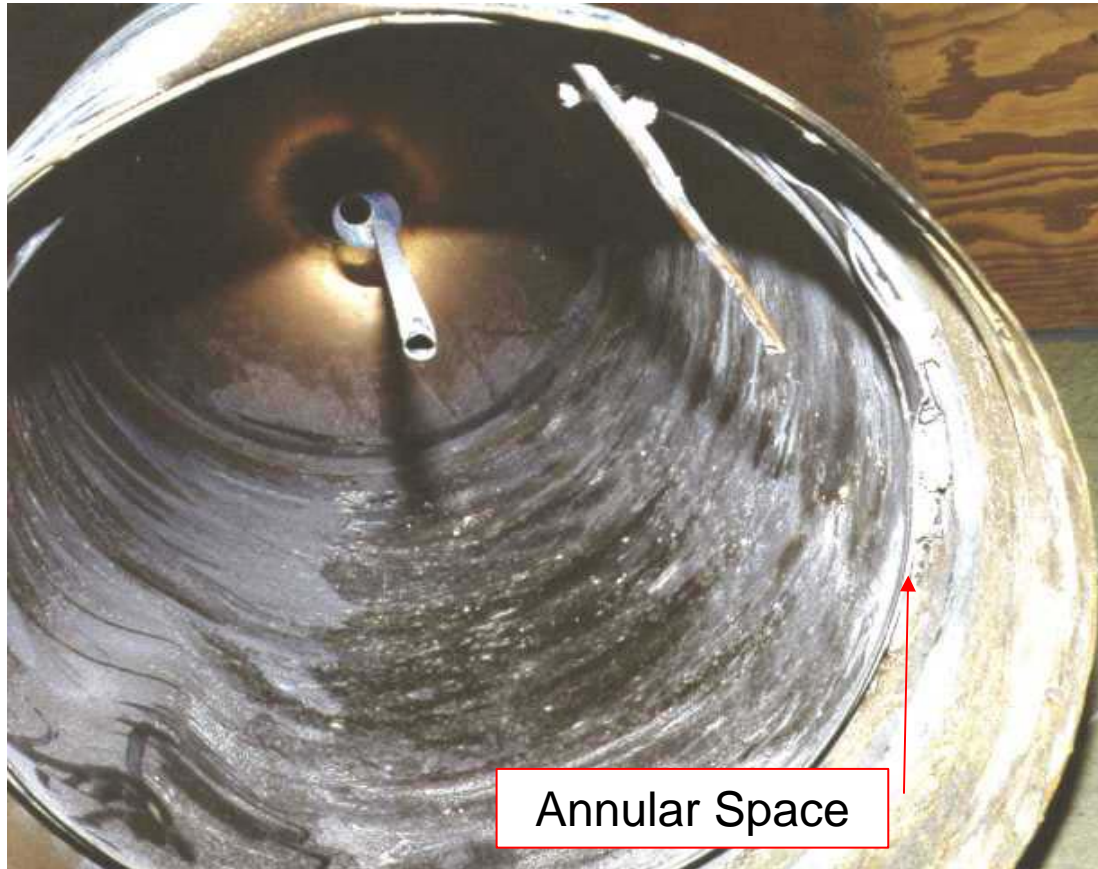




Plug/Cap

Hole in vacuum  
port

# Both inner and outer shells separated at bottom welds





# Cylinder exploded at 12:40 PM while transport vehicle was parked on busy Interstate highway



The blast blew one individual across 5 lanes of traffic. The other was blown approximately 40 feet. Both survived

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Cylinder flew approximately ¼ mile before plunging through the roof of an apartment, severing a main natural gas line and coming to rest in the living space

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Plywood applied over hole in roof



Despite heavy damage, no injuries to apartment tenants were reported

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# Apartment interior

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Note that the media reported the event as a Butane cylinder explosion

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**Butane explosion on I-10  
hurts two, hits apartment**